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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,937	04/05/2001	Kwan-sun Park	030681-292	3806

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EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 08/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/825,937

Applicant(s)

PARK ET AL.

Examiner

Prasad R Akkapeddi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recited limitation "pixel electrodes corresponding to the common electrodes, and thin film transistors (TFTs) for driving the pixel electrodes are installed on the inner surface of the front and rear plate" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings were objected to in the previous office action dated 03/17/2003. Though the applicant has amended the claim and argues, on page 4 of the amendment dated 06/17/2003, that the amended language overcomes the objection. The Examiner respectfully disagrees with this argument. Even the amended claim conveys, in the Examiner's opinion, that the pixel electrodes and the TFTs are installed on inner surface of (both) the front and rear plate.

However, the drawings (Fig. 4) clearly shows that the pixel electrode (105) and the TFTs (106) are installed on the inner surface of the rear plate (104) only and NOT on the inner surface of the front plate(101).

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Response to Amendment

Applicant's arguments with respect to claims 1-11 have been considered but are moot. The original rejections as stated in the Office action dated May 17, 2003 are still valid.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirasaki et al. (Shirasaki) (U.S. Patent No. 6,025,894) in view of Littman et al. (Littman) (U.S. Patent No. 5,688,551).

As to claim 1: Shirasaki discloses a liquid crystal display having a liquid crystal panel (13) having a front plate (20) and a rear plate (21) between which liquid crystal (22) sandwiches, wherein common electrodes (28) for driving the liquid crystal pixel electrodes (30) and thin film transistors (TFTs) (31) for driving the pixel electrodes are installed on the inner surface of the rear plate and a backlight (12) having a front plate (14) and a rear plate (19). Shirasaki although disclosing the emission of R, G, B, colors (Col. 8, lines 54-56), does not explicitly disclose the specific configuration of the electrodes structure. However, Littman in disclosing a similar organic electro luminescent display panel, discloses a plurality of R, G and B anode electrodes (120) on which fluorescent layers (131,

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132, 133) are formed in parallel on the front plate, cathode electrodes (140, Col 3, line 35)) corresponding to the anode electrodes (120) so are formed on the rear plate, and light emitting units for colors according to the anode electrodes and the cathode electrodes are installed to provide light of R, G and B colors to each pixel of the liquid crystal panel (Fig. 4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the organic electro luminescent device disclosed by Littman to the display device disclosed by Shirasaki to facilitate the production of high resolution panels with a pixel pitch as small as a few microns and a simple deposition process for the colored medium.

As to claim 3 and 4: Shirasaki discloses the incidence of R, G, B light colors being incident on the LCD panel, a diffusion plate (scatter control film, 120) installed between the liquid crystal panel and the backlight. The cathode electrodes and the anode electrodes are formed opposite to and in parallel to each other. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the organic electro luminescent device disclosed by Littman to the display device disclosed by Shirasaki to facilitate the production of high resolution panels with a pixel pitch as small as a few microns and a simple deposition process for the colored medium

3. Claims 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirasaki and Littman as applied to claim 1 above, and further in view of applicant's disclosed citation Hodson (U.S. Patent No. 5,760,858).

Although Littman discloses that the electrodes are orthogonal to each other (Col. 3, line 38), neither Shirasaki nor Littman disclose the specific connections of the cathode electrodes and anode electrodes to the bus lines. However, Hodson discloses various electrode connections and the details of the connection of these electrodes (34, 36) (Figs. 4 and 5). The R,G,B lines (43 R,G,B) are connected to the first bus line (36) and the remainders (74 R,G,B) are connected to a second bus line (34). In Fig.5 various bus line connections are shown and the front (75) and back plates (73) and the right angle crossings of the cathode and anode electrodes. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the specific connections to the bus lines as recited using the disclosure of Hodson to enhance the efficiency of the device and achieve display luminance uniformity.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirasaki and Littman as applied to claim 1 above, and further in view of Nakanishi et al. (Nakanishi) (U.S. Patent No. 5,969,832).

Although response times for the liquid crystal displays is inherent, neither Shirasaki nor Littman do not explicitly disclose the specific response times for their liquid crystal displays. Nakanishi on the other hand, in disclosing a display device, discloses that the response times is about 1- 5.5 msec (Col. 16, lines 1-6), which is close to the range 5.81 msec as recited in the instant claim. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt a liquid crystal with indicated response

time to facilitate fast response from these display devices. Note that the range for the response times as disclosed by Nakanishi (1 to 5.5. msec) is close to the value of 5.81 msec. Therefore, the range in the instant claim would have at least been obvious. See In re Malagari, 499 F.2d 197, 182 USPQ 549 (CCPA 1974).

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (a) Mir et AL. (U.S.Patent No. 6,424,093)
- (b) Yamagishi (U.S.Patent No. 4,920,409)
- (c) Arisawa et al. (U.S.Patent No. 4,031,541)

Response to Arguments

Following is the response by the Examiner to the Applicant's arguments:

(a) Applicant's argument No. 1 (page 8, lines 11-12): Whether one views the Shirasaki et al. patent alone or in combination with the Littman et al. patent, not all of the features of independent claim 1 are found.

Examiner's response to argument No.1: The combination of Shirasaki and Littman does meet the features of claim 1 as stated in the office action dated 03/17/2003. In addition, Littman teaches in (col. 3, lines 39-54) that each pixel is divided into three sub-pixels and each sub-pixel has an organic EL medium that emits red, green or blue light. Each sub-pixel has electrodes (120 and 140), similar to the electrodes (203 and 207) of the instant application.

(b) Applicant's argument No. 2 (Page 6, lines 13-14): According to the present invention, a single pixel can serve to express three different colors.

Examiner's response to argument No. 2: The Examiner does not see that this feature is disclosed in the specification. In Fig. 4 of the instant application, it is shown that light having three different colors is generated by the structure having the electrodes (203, 207) and the fluorescent layer (204) and is used as a backlight. The combination of Littman and Shirasaki will achieve similar result.

(c) Applicant's argument No. 3 (Page 8, lines 17-18): Applicants do not claim their invention is a high-speed light switch.

Examiner's response to argument No. 3: Though it is not claimed, on page 9, lines 21 of the specification of the instant application, the applicant does disclose the high-speed light switch.

The Nakanishi teachings do not apply to a high-speed light switch, but to an image display device and to a liquid crystal panel (col. 16, lines 1-6), where the panel responds to a switching times of 1 msec or less. The time of 1msec. or less applies to the response of the liquid crystal panel and not of the switching of the lights alone, thus meeting the limitations of claim 2.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 703-305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

8RA

8/21/03



JAMES DUDEK
PRIMARY EXAMINER